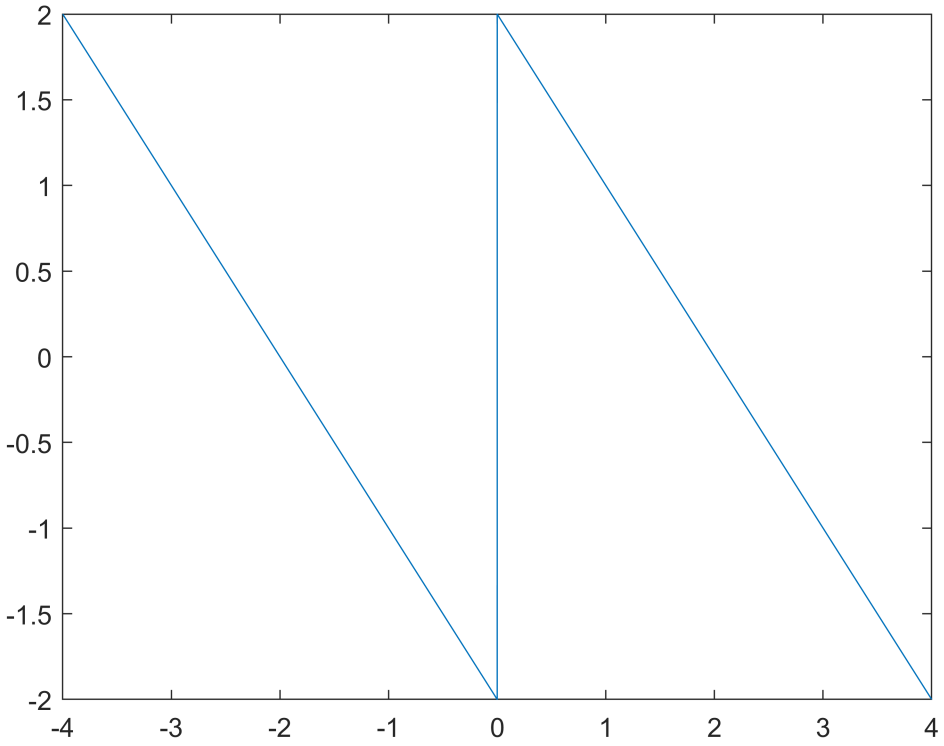
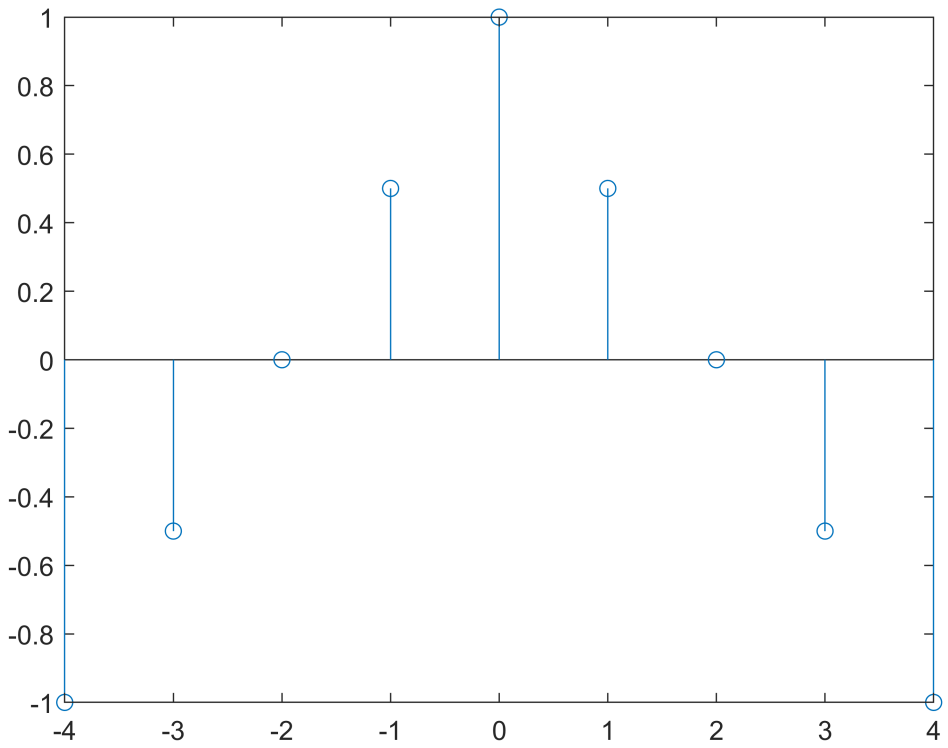
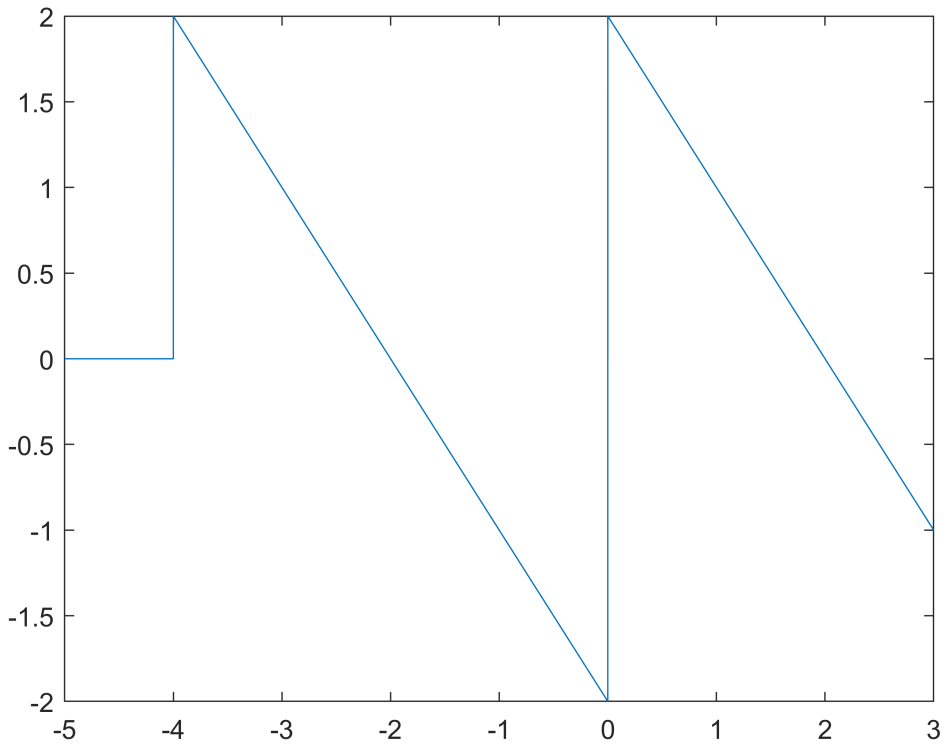
```
clc
clear variables;
%ex1
%a.
t=[-4,4];
n=-4:4;
x1=@(t) ((-2-t).*(t>=-4 & t<=0)+(2-t).*(t>0 & t<=4));
x2=@(t) ((t/2+1).*(t>=-4 & t<=0)+(-t/2+1).*(t>0 & t<=4));
fplot(x1,t);
```



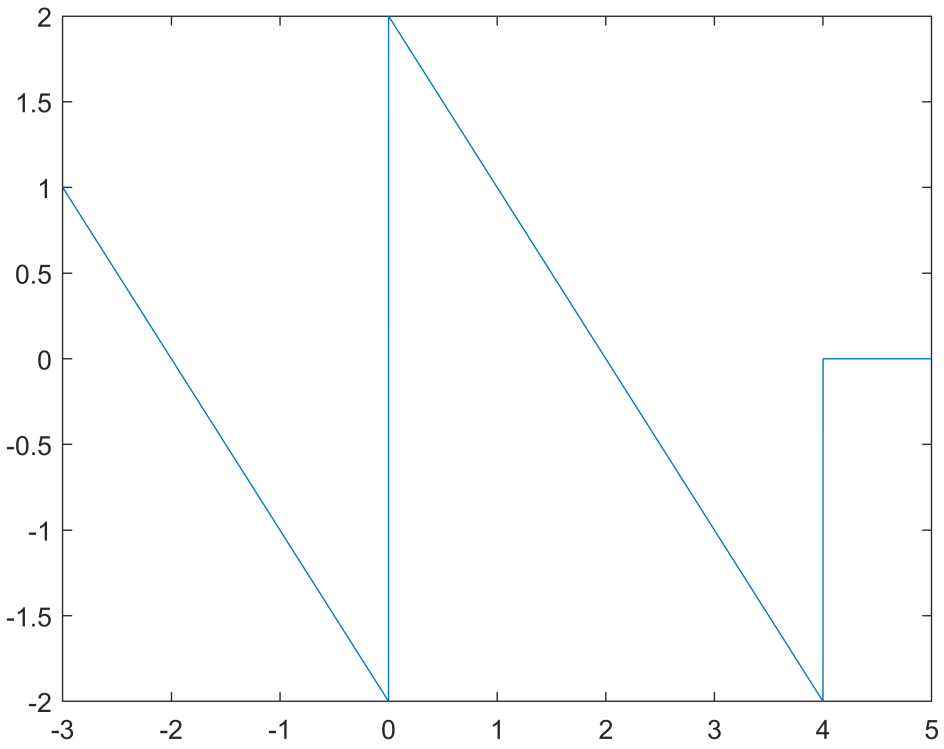

```
stem(n,x2(n));
```


1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
-4
-3
-2
-1
0
1
2
3
4

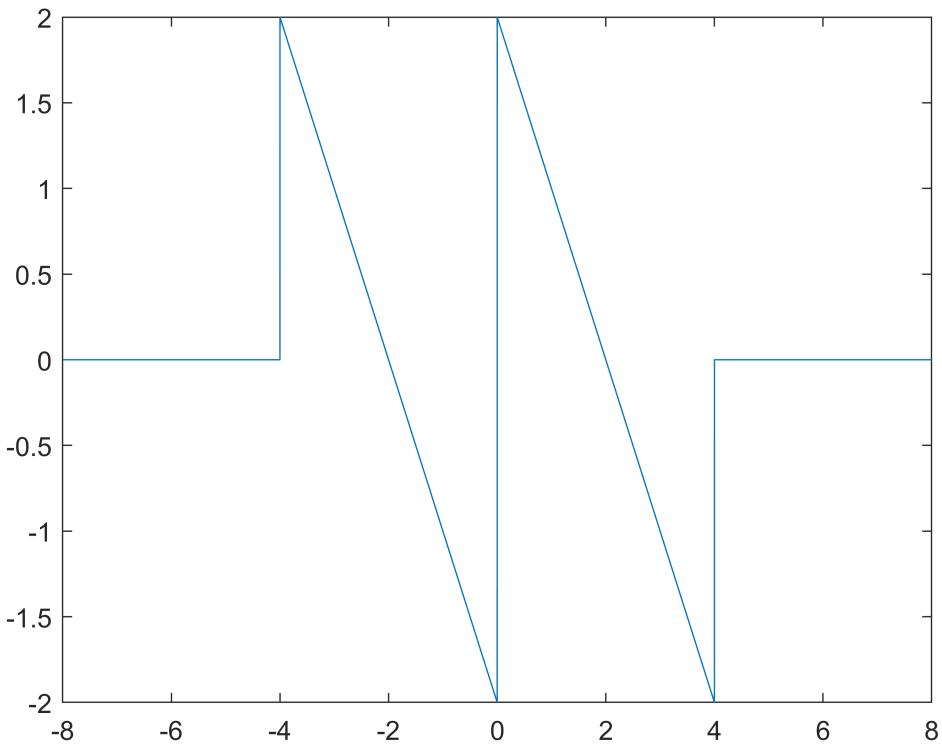
```
fplot(x1,t-1);
```


2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
-5
-4
-3
-2
-1
0
1
2
3

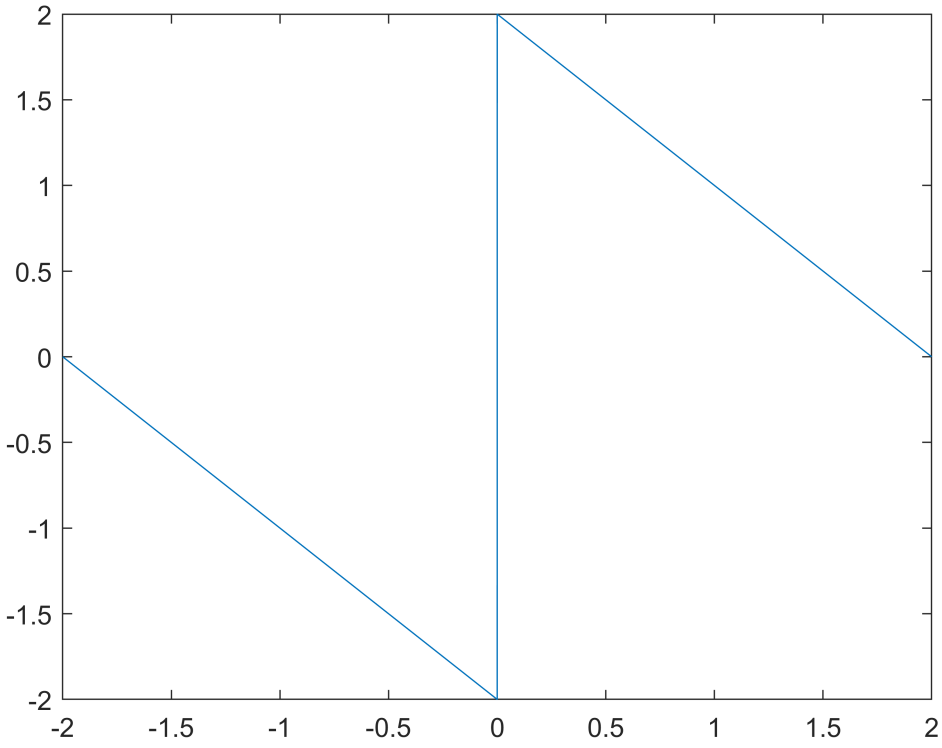
```
fplot(x1,t+1);
```



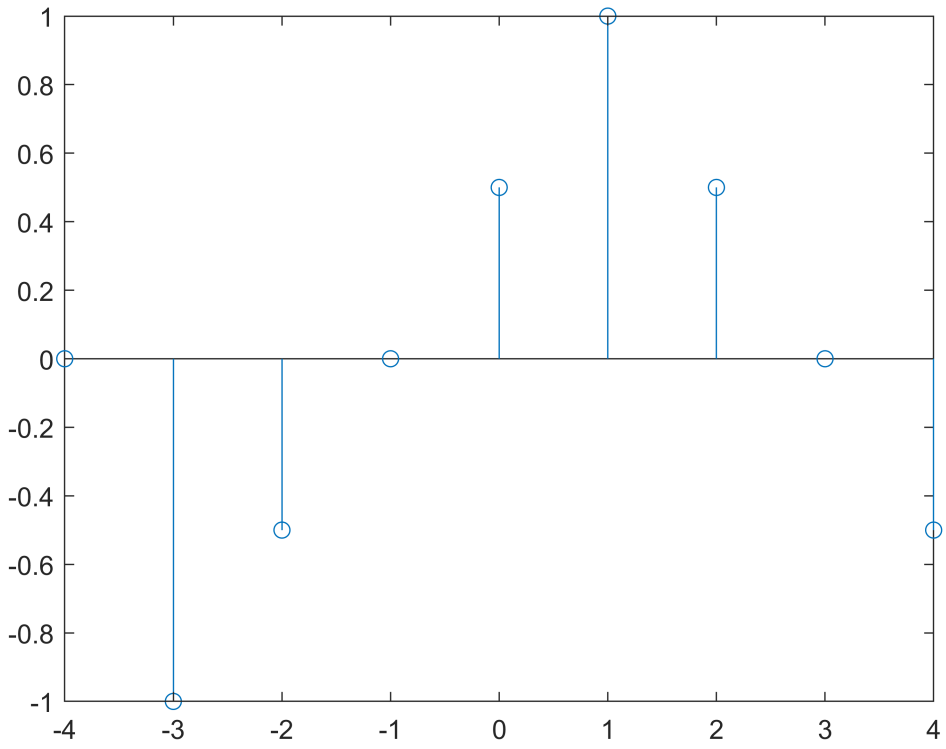

```
fplot(x1,2*t);
```



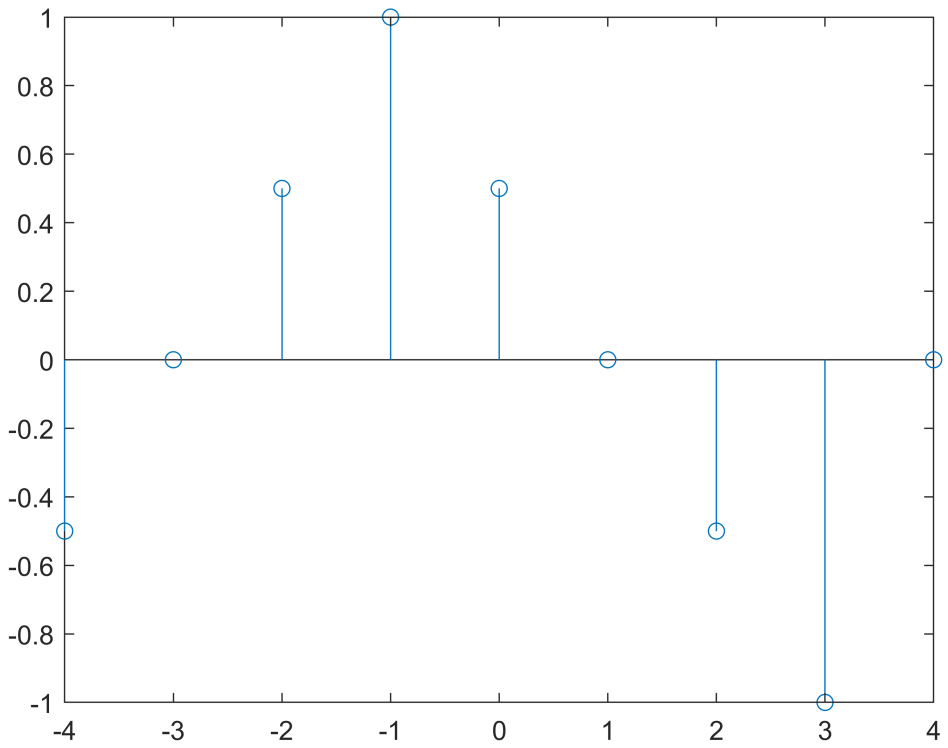

```
fplot(x1,t/2);
```



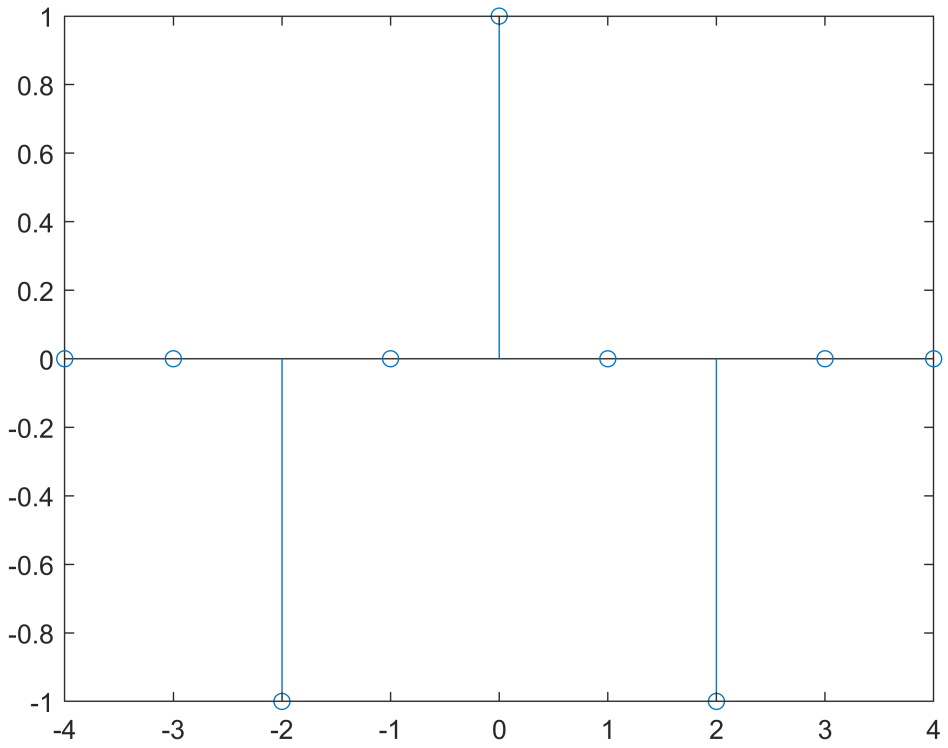
```
stem(n,x2(n-1));
```



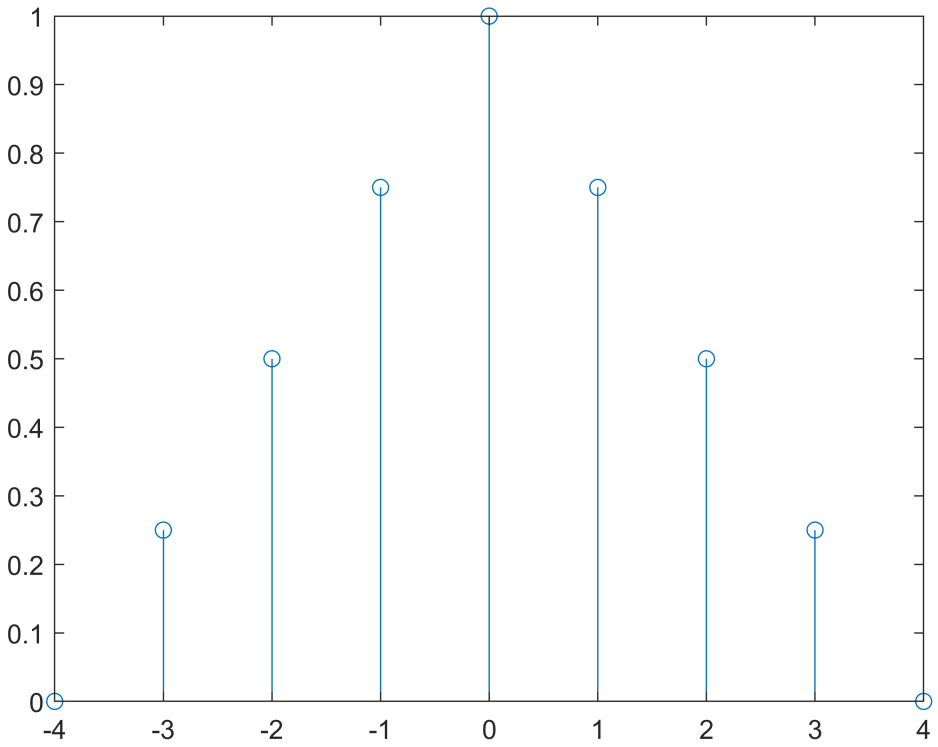

```
stem(n,x2(n+1));
```


1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
-4
-3
-2
-1
0
1
2
3
4

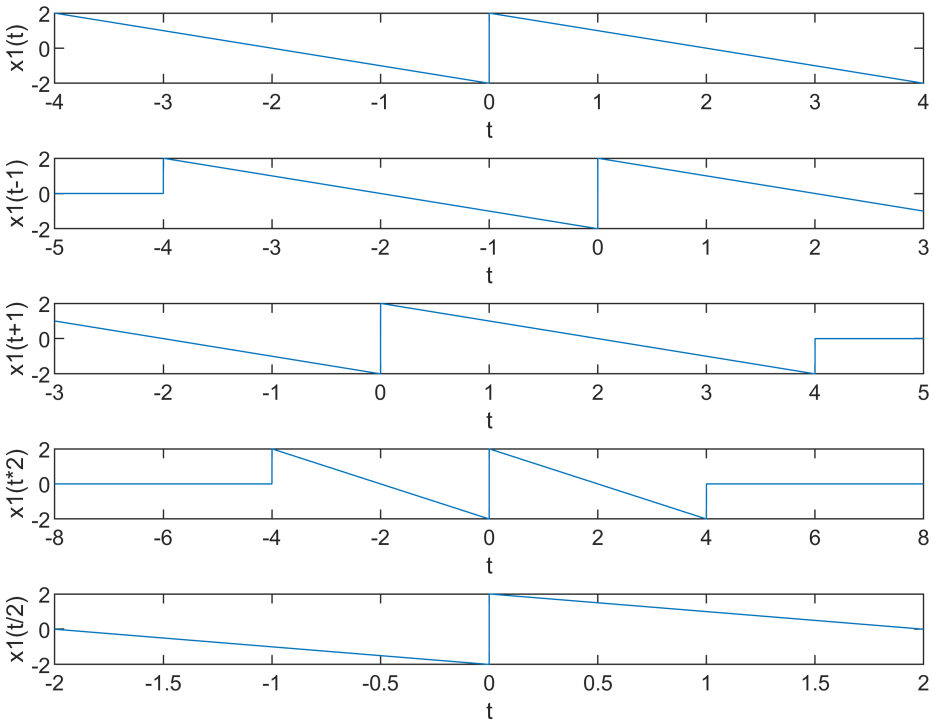
```
stem(n,x2(n*2));
```


1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
-4
-3
-2
-1
0
1
2
3
4

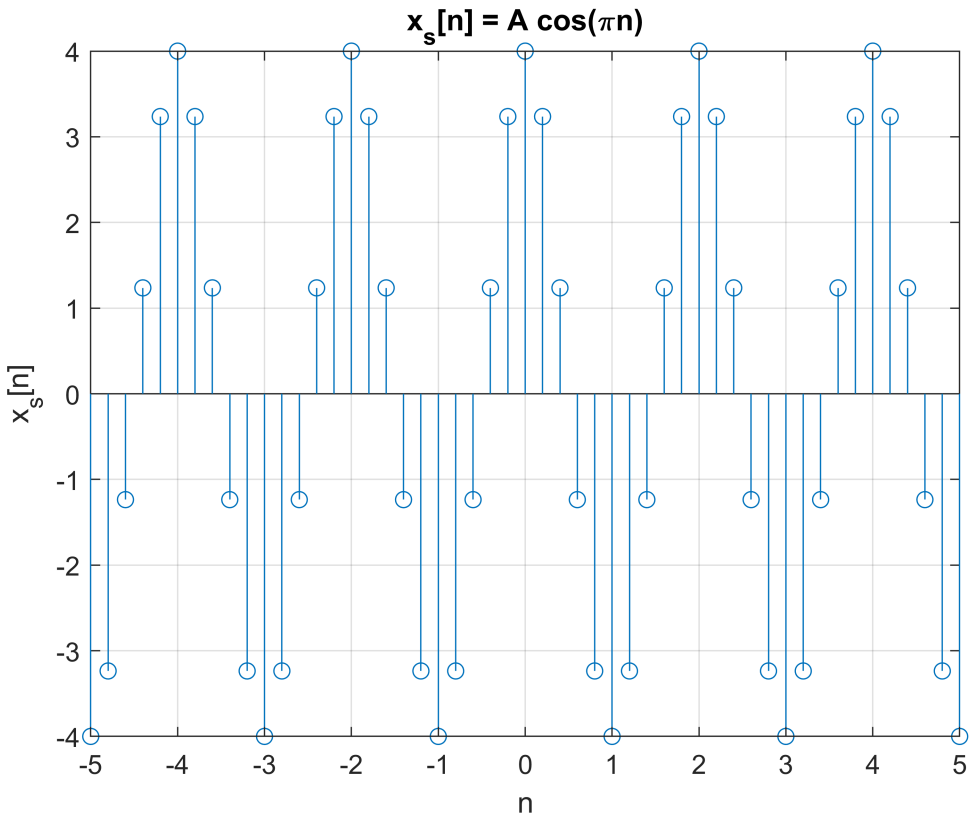
```
stem(n,x2(n/2));
```



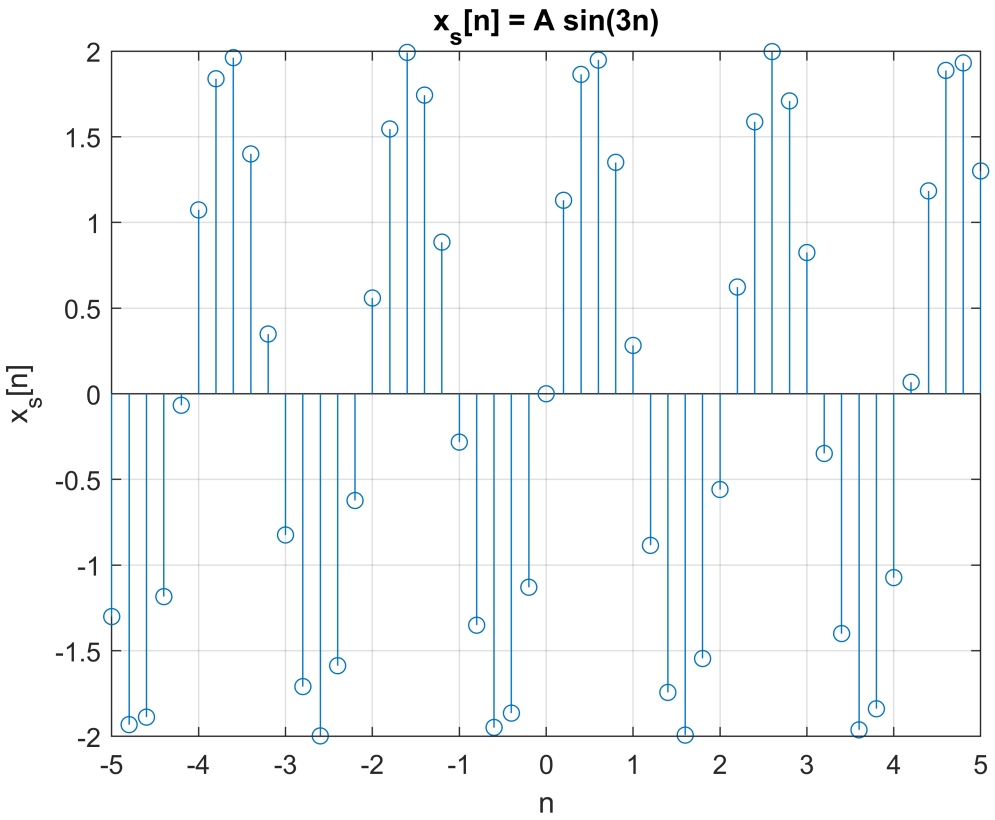

```
%b.
figure(1);
subplot(5,1,1),fplot(x1,t);xlabel('t');ylabel('x1(t)');
subplot(5,1,2),fplot(x1,t-1);xlabel('t');ylabel('x1(t-1)');
subplot(5,1,3),fplot(x1,t+1);xlabel('t');ylabel('x1(t+1)');
subplot(5,1,4),fplot(x1,t*2);xlabel('t');ylabel('x1(t*2)');
subplot(5,1,5),fplot(x1,t/2);xlabel('t');ylabel('x1(t/2)');
```


x1(t)
2
0
-2
-4
-3
-2
-1
0
1
2
3
4
t
x1(t-1)
2
0
-2
-5
-4
-3
-2
-1
0
1
2
3
t
x1(t+1)
2
0
-2
-3
-2
-1
0
1
2
3
4
5
t
x1(t*2)
2
0
-2
-8
-6
-4
-2
0
2
4
6
8
t
x1(t/2)
2
0
-2
-2
-1.5
-1
-0.5
0
0.5
1
1.5
2
t

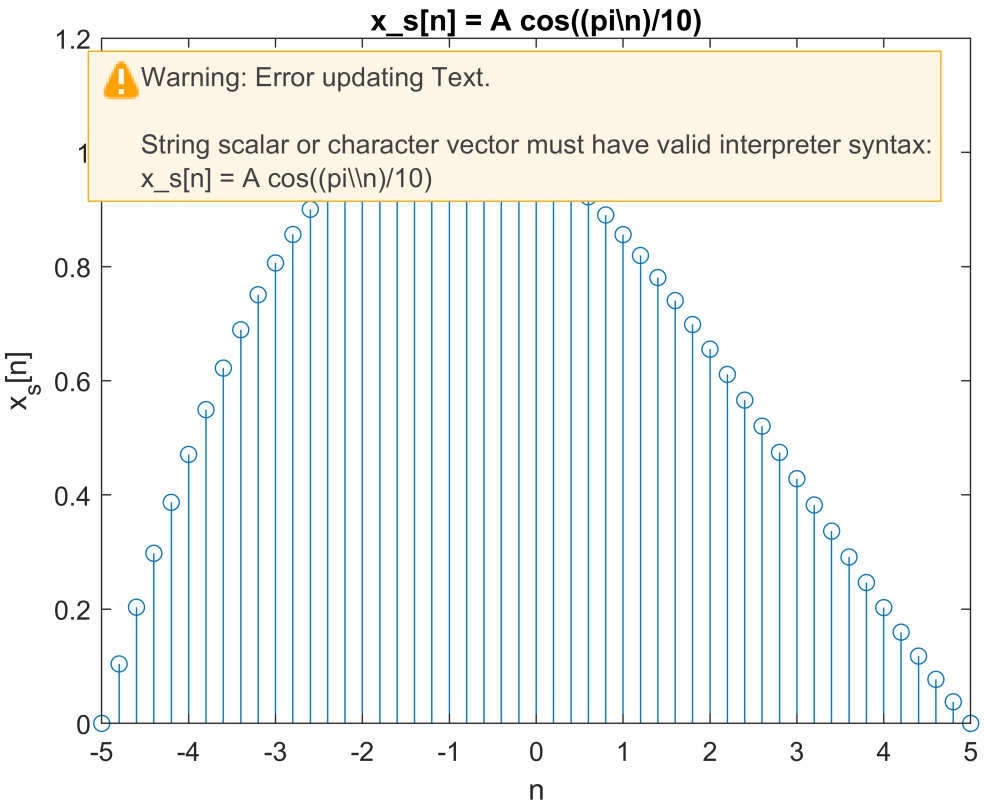
```
%Ex2

clear variables
%a
A=4;
n1=-5; n2=5; n=n1:0.2:n2;
xs = A*cos(n*pi);
stem(n, xs); grid;
xlabel('n'); ylabel('x_s[n]');
xticks(-5 : 5)
title('x_s[n] = A cos(\pin)');
```



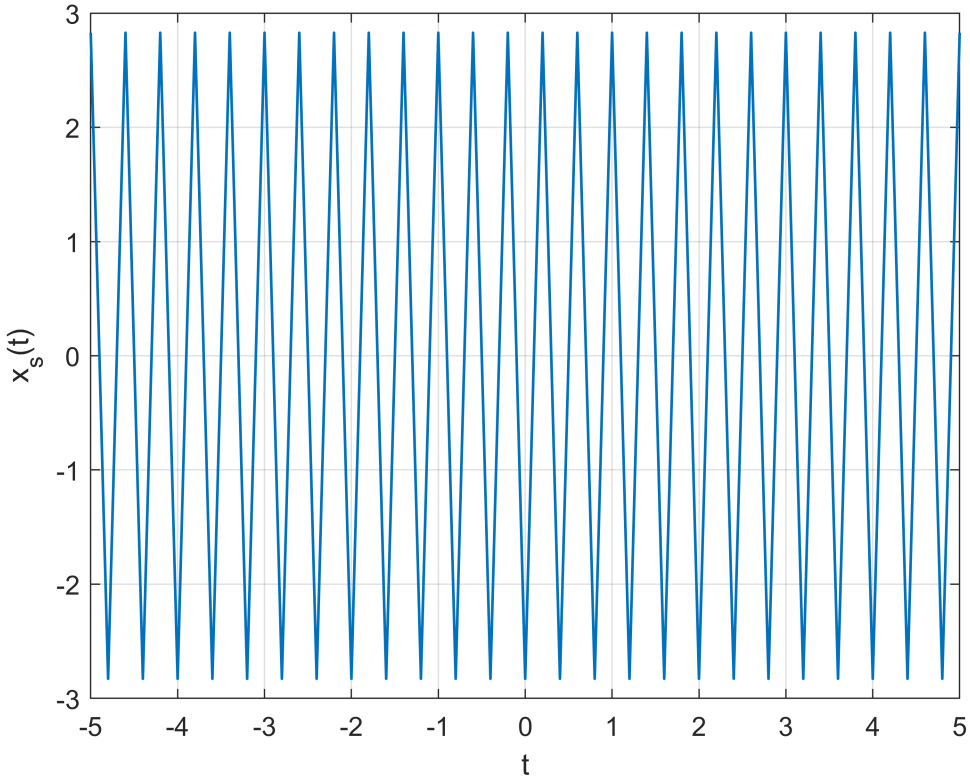

```
clear variables
%b
A=2;
n1=-5; n2=5; n=n1:0.2:n2;
xs = A*sin(3*n);
stem(n, xs); grid
xlabel('n'); ylabel('x_s[n]');
xticks(-5 : 5)
title('x_s[n] = A sin(3n)');
```



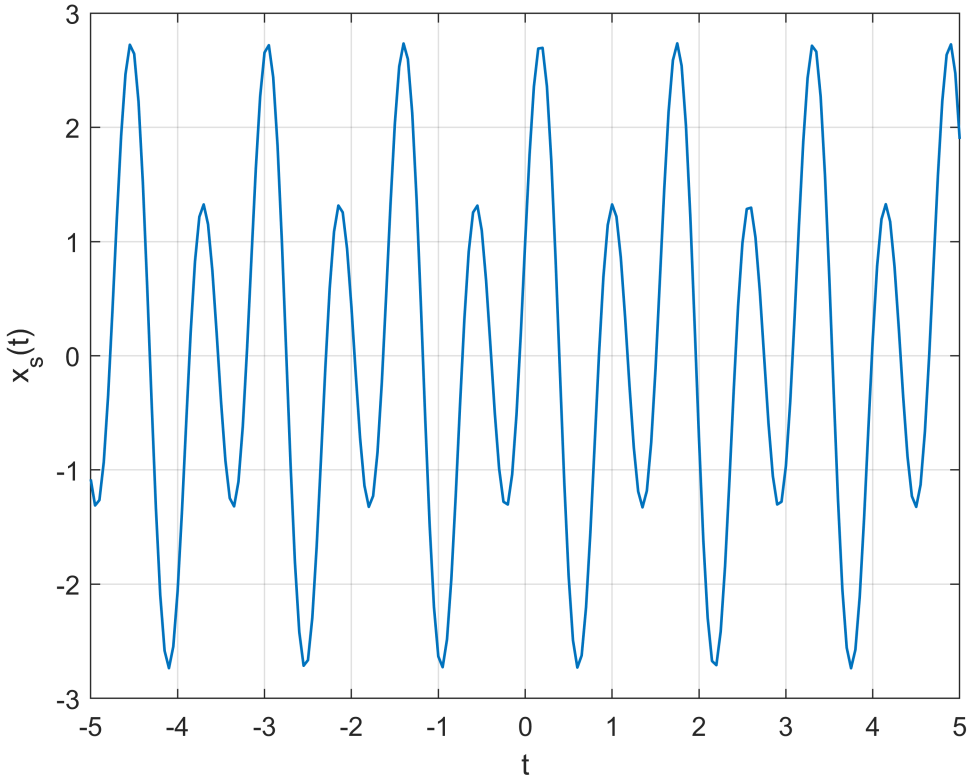

```
clear variables
%c
A=0.9;
n1=-5; n2=5; n=n1:0.2:n2;
xs = (A.^n) .* cos((pi*n)/10);
stem(n, xs);
xlabel('n'); ylabel('x_s[n]');
xticks(-5 : 5)
title('x_s[n] = A cos((pi\n)/10)');
```



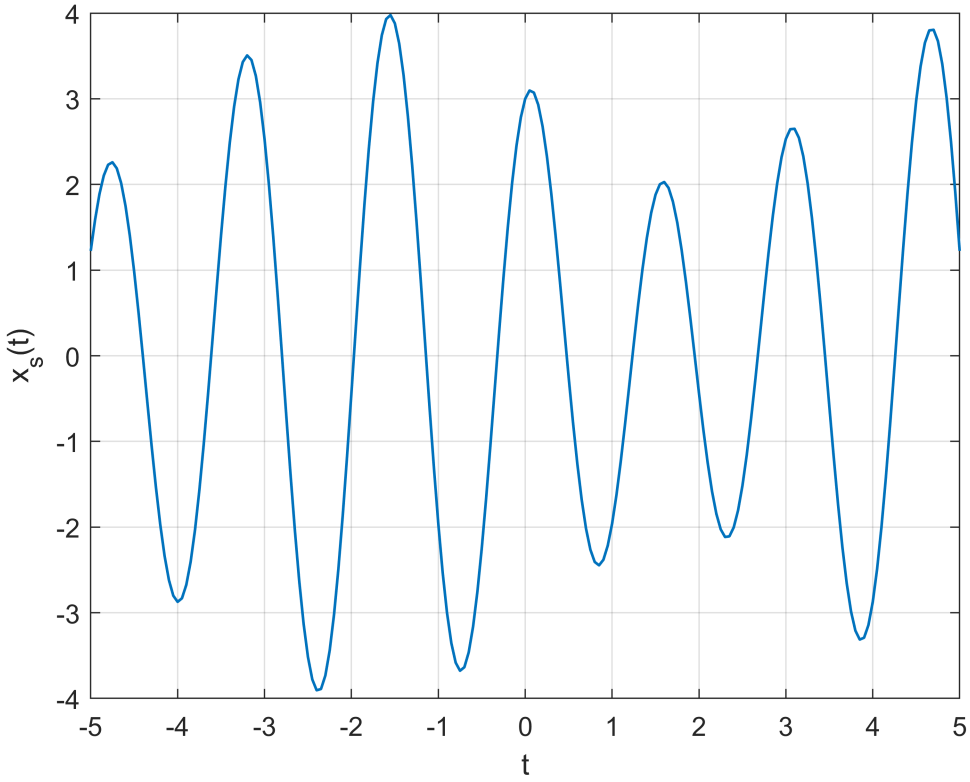

```
clear variables
%d
A=4;
t=-5:0.2:5;
xs = A * sin(5*pi*t - pi/4);
plot(t,xs,'LineWidth',1); grid;
xlabel('t');
xticks(-5 : 5)
ylabel('x_s(t)');
```




```
clear variables
%e
t=-5:0.05:5;
xs = cos(4*t)+2*sin(8*t);
plot(t,xs,'LineWidth',1); grid;
xlabel('t');
xticks(-5 : 5)
ylabel('x_s(t)');
```




```
clear variables
%f
t=-5:0.05:5;
xs = 3*cos(4*t) + sin(pi*t);
plot(t,xs,'LineWidth',1); grid;
xlabel('t');
xticks(-5 : 5)
ylabel('x_s(t)');
```


4
3
2
1
0
-1
-2
-3
-4
$x_s(t)$
-5
-4
-3
-2
-1
0
1
2
3
4
5
t